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ABSTRACT

The document begins by considering the underlying assumptions of open education and the development of open education in Great Britain and the United States. Several definitions and descriptions of open education are cited. The main body of the document deals with the effects of open education on student achievement, student attitudes and behavior, the role and attitude of teachers and administrators, parent and community opinion, and school costs. The results of surveys and evaluation tests conducted in previous studies are presented. The document also considers the problem of student adjustment in the transition from an open to a traditional school. A 201-item bibliography, based on a search of published and unpublished literature on open education through December 1973, is included. (Author/DN)

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RESEARCH BRIEF

SUMMARY OF RESEARCH ON OPEN EDUCATION

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FOREWORD

Open education is a topic of great interest to American educators and laymen. The current debate over *open education*--what it is and is not; what it can and cannot do; and what should and should not be changed in schools--is an important controversy that will affect the future of American education. Although the debate has been heated at times and certainly plentiful, research has been sparse.

This *ERS Research Brief*, one of several types of ERS publications designed to provide reliable and timely information needed by the administrative teams of the nation's school systems, summarizes the available research on *open education*. It is published not in an attempt to settle the debate, but in an effort to provide substance that will help clarify the issues and thereby assist educational leaders who are involved in decision making.

In the process of obtaining and summarizing the research related to *open education*, every effort has been made to be comprehensive, concise, and objective. An extensive bibliography of literature and sources relating to *open education* is included to assist those who need further information.

Glen Robinson
Director of Research
Educational Research Service

OVERVIEW

Thirty studies on open education are described in this *Research Brief*. They deal with student achievement, student attitude and behavior, the role and attitude of teachers and administrators, parent and community reaction, and school costs. Some of the highlights of these studies are as follows:

Student Achievement

On the elementary level, two studies were favorable to open education, while one had mixed results tending to favor traditional schools. On the junior and senior high levels, one study was favorable to open education, and three report statistically insignificant differences in student achievement.

Student Self-Concept

Of three studies, one concluded that children in open elementary schools have greater self-esteem than their counterparts in conventional schools, while another study found no significant difference in the self-concept of open and traditional elementary school students. A third study found sex-related differences in self-concept, with boys in open schools gaining in self-esteem.

Student Behavior

In one study, students in open schools were found to have more confidence in their academic ability and to be less liable to conform to the work of others than students in conventionally organized classes. One study found that students in an open school use their time well; another reported that the incidence of disruptive behavior by unsupervised students was much lower in an open classroom than it was in a traditional classroom.

Student Attitude

Of five studies pertaining to student attitude, four were favorable to open schools while one reported findings favorable to conventional schools. Researchers noted the highly favorable response of boys to open education programs.

Transition from an Open to a Traditional School

A study focusing on the junior high level concluded that students from open elementary schools found the transition to a traditional junior high school easier than students from a traditional elementary school.

Teacher Opinion and Morale

One study reports favorable teacher opinion of open education at the senior high level, while one study at the junior high level found no significant differences in attitude and classroom behavior among teachers in open and conventional schools. On the elementary level, one study found morale lower in innovative, open schools than in conventional schools. A study of inexperienced teachers in an open elementary school found favorable teacher reaction to open education. A report on status variables and team teacher satisfaction in open plan schools concluded that members of smaller, informal teams were more satisfied than members of larger teams with formal leadership. One research study on personality characteristics of teachers suggests that no one personality type is best suited to open education.

Parent and Community Reaction

Of four studies on parent reaction, three found parents favorable to open education, while one found no difference in attitude between parents of children in open and traditional schools. One study of community and police reaction to open education on the senior high level reports findings favorable to open education.

The Administrative Role

In the literature of open education, several suggestions for changes in the administrative role have been made, including a proposal for the establishment of a new administrative position, the "executive secretary." The individual in this position would handle daily administrative details, thereby allowing the school's principal to concentrate on in-service training and leadership.

School Costs

Studies done in this area suggest that schools may benefit economically from open education. Open education programs can allow for an increase in school enrollment capacity, a more diversified program and/or an increase in the amount of floor space available for instructional use.

FOOTNOTES: Within the text, citations of references listed in the "Selected Bibliography" are indicated by entry number followed by specific page number. For example, (15:12) refers to the twelfth page of bibliography entry number 15 (Minnie P. Berson, "Inside the Open Classroom").

INTRODUCTION

Open education is a topic that arouses much controversy and interest in American educational circles. Its supporters, prominent among them Charles Silberman, Joseph Featherstone, and Roland Barth, claim that open education provides a humane and flexible learning environment for children with sufficient freedom to meet individual learning needs. On the other hand, many of its opponents fear that the teaching of basic skills and the maintainence of proper discipline will be overlooked in the open classroom.

Both advocates and critics of open education do agree that it represents a more basic change in American education than the curriculum revision programs and new educational materials that have been developed in past decades. Open education involves a search for an alternative structure of education rather than a piecemeal reform of the traditional structure. Its adoption would necessitate fundamental changes in the role and behavior patterns of students, teachers, parents, and administrators.

The concept and reality of open education originated in the field of early childhood education. Today open education has spread to the junior and senior high levels and is being expanded to include experiments at the university level. The open education movement is gaining increasing numbers of proponents in the United States, and scores of American school systems have established open education programs in one or more of their schools.

American supporters of open education often point to the British infant school as a model for American development. The British experience with open education is the most comprehensive to date. Over 25 percent of British "infant" or primary classrooms for children ages 5-7 now follow the open education plan, and an increasing number of infant and junior schools, for children ages 8-11, are adopting open education programs. Termed the "Leicestershire Plan," "integrated day," and "free day," open education programs were begun in Great Britain in the post World War II period. In the 1960's the British government evaluated its elementary schools and reported its findings in *Children and Their Primary Schools*, published in 1967 (33). This report supports the continuation and expansion of open education in British schools.

In Great Britain, open education developed over a considerable period of time and out of practical experience. The British experience leads open education advocates to stress the fact that it is not only a theory but also, at least in that country, a viable and widespread educational practice. It cannot be said, however, that open education arises completely from practical experience and has no basis in philosophy or history. Its historical and philosophical antecedents can be found in the child development and educational theories of Jean-Jacques Rousseau, Leo Tolstoy, Frederich Froebel, Maria Montessori, Pestalozzi, and John Dewey. Open education also owes a debt to the progressive educational reformers of the 1920's and 1930's and, in particular, to the theories of Jean Piaget, a Swiss psychologist who stresses the direct role of concrete experience in learning and has outlined various natural stages of intellectual development through which each child must pass before reaching intellectual maturity.

In addition, a number of American reforms in education that developed in the 1950's and 1960's, while not in themselves constituting open education, indicate a trend toward the development of open education concepts. Among these reforms are ungraded and mixed age classes, differentiated staffing, and flexible grouping of students.

Underlying Assumptions of Open Education. Certain assumptions underlie open education and generally are accepted by the advocates of open education. Roland Barth, author of *Open Education and the*

American School (9), lists 29 assumptions about knowledge and children's learning that provide the basis for open education. These are:

1. Children are innately curious and will explore their environment without adult intervention.
2. Exploratory behavior is self-perpetuating.
3. The child will display natural exploratory behavior if he is not threatened.
4. Confidence in self is highly related to capacity for learning and for making important choices affecting one's learning.
5. Active exploration in a rich environment, offering a wide array of manipulative materials, will facilitate children's learning.
6. Play is not distinguished from work as the predominant mode of learning in early childhood.
7. Children have both the competence and the right to make significant decisions concerning their own learning.
8. Children will be likely to learn if they are given considerable choice in the selection of the materials they wish to work with and in the choice of questions they wish to pursue with respect to those materials.
9. Given the opportunity, children will choose to engage in activities that will be of high interest to them.
10. If a child is fully involved in and is having fun with an activity, learning is taking place.
11. When two or more children are interested in exploring the same problem or the same materials, they will often choose to collaborate in some way.
12. When a child learns something that is important to him, he will wish to share it with others.
13. Concept formation proceeds very slowly.
14. Children learn and develop intellectually not only at their own rate but in their own style.
15. Children pass through similar stages of intellectual development, each in his own way and at his own rate and in his own time.
16. Intellectual growth and development take place through a sequence of concrete experiences followed by abstractions.
17. Verbal abstractions should follow direct experience with objects and ideas, not precede them or substitute for them.
18. The preferred source of verification for a child's solution to a problem comes through the materials he is working with.
19. Errors are necessarily a part of the learning process: they are to be expected and even desired, for they contain information essential for further learning.
20. Those qualities of a person's learning that can be carefully measured are not necessarily the most important.
21. Objective measures of performance may have a negative effect on learning.
22. Learning is best assessed intuitively, by direct observation.
23. The best way of evaluating the effect of the school experience on the child is to observe him over a long period of time.
24. The best measure of a child's work is his work.
25. The quality of being is more important than the quality of knowing: knowledge is a means of education, not its end. The final test of an education is what a man is, not what he knows.
26. Knowledge is a function of one's personal integration of experience and therefore does not fall into neatly separate categories or "disciplines."
27. The structure of knowledge is personal and idiosyncratic; it is a function of the synthesis of each individual's experience with the world.
28. Little or no knowledge exists that is essential for everyone to acquire.
29. It is possible, even likely, that an individual may learn and possess knowledge of a phenomenon and yet be unable to display it publicly. Knowledge resides with the knower, not in its public expression (10: 68-9).

Definitions and Descriptions of Open Education. Definitions and descriptions of open education differ in length and complexity, but each contains several elements. One definition of an open classroom lists three basic characteristics that must be present for a classroom to qualify as "open":

----Children participate in deciding what they want to learn.

----The classroom is rich in resources, such as audio-visual equipment, reading materials, math games, language laboratories, and science projects.

----The teacher serves as a manager, planner, supplier of materials, arbitrator of ideas, innovator, reactor, communicator of skills, and attitudes, and motivator of all children! (97: 46-48)

In developing a guide to the new vocabulary of open education, Rita Iatis provides a more expanded definition for the open classroom as well as definitions for open education, the open school, and the open university (184: 91).

> *Open education* is a method of fostering the personal growth and expansion of knowledge of students through (a) expanded and/or flexible facilities such as interest centers within self-contained classrooms, new open-plan schools, or community facilities; (b) trust in the student's desire to learn and ability to choose his own learning experiences; (c) provision of many and varied learning materials; and (d) emphasis on a positive role for the teacher as a facilitator and guide to learning.
>
> *Open classroom* refers to a self-contained classroom, usually elementary, that has been rearranged into interest or activity centers and that sometimes also makes use of corridors. The classrooms may be all one grade, multigrade, or nongraded. Students choose their own activities, using a variety of materials available in the centers, with guidance and continuing assistance from the teacher.
>
> *Open school* means (a) a public school, usually secondary, that makes extensive use of community resources by encouraging students to select their educational experiences from activities and programs available in the community, or (b) any school using one or more of the elements of open education. The former usually has a very limited physical plant.
>
> *Open university* designates one or more institutions of higher education that make the opportunity for study and pursuit of a degree available to students without the need for on-campus study. Television, radio, and other forms of media and technology are combined with more traditional methods of correspondence packages and tutorials. Admission is usually open to all, and the curriculum is organized on an interdisciplinary basis.

Lillian Katz describes open education with reference to selected dimensions of classroom life and contrasts the open classroom with traditional-formal classrooms in her 1971 report on open education research, as depicted in Figure 1. According to this view, open classrooms are characterized by flexible space and use of time, a wide range of activities which develop from the interests of children, a great emphasis on academic skills and individualized learning, a high degree of interaction between children, and student initiated teacher-child interaction.

In developing and validating a classroom measurement instrument that discriminates between open and traditional classrooms, Herbert Walberg and Susan Thomas selected eight open education "themes" which consistently were assigned high importance by open education advocates. From these themes, a 50 item observation rating scale was constructed as well as a teacher questionnaire which was meant to distinguish open from traditional classrooms. The rating scale and questionnaire then were tested for validity in 62 open and traditional classrooms in the U.S. and Great Britain. Results of the test led them to conclude the following: "The rating scale showed that expectations for children, the physical arrangement of classrooms, the role of the teacher, the use of curriculum materials and tests, the direction of activities, and the use of time and priorities for children were fundamentally quite different for the open and traditional groups" (54: 24). "Moreover, the differences between Open and Traditional teachers are far larger than the differences found either between schools of different socioeconomic strata or between schools in United States and Great Britain" (188: 207).

The eight themes selected by Walberg and Thomas, the number of related items on the rating scale and questionnaire, and the correlation between the questionnaire and observation are presented in Table 1.

Figure 1

The Position of Open-Informal and Traditional-Formal Classes on Selected Dimensions of Classroom Life (92: 9)

O-I = Open-Informal Classes; F-T = Formal-Traditional Classes

Having presented definitions of the open classroom as well as some background information on the open education movement, attention now turns to research findings in the field of open education. This Research Brief is based on a search of available books, periodicals, and reports; it deals with student achievement, student attitude and behavior, the role and attitude of teachers and administrators, and parent and community reaction to open education.

Definitions of open education vary significantly, and open education programs on different levels in different localities vary greatly. In order to provide maximum information, no study has been excluded from this report because the "open education" program did not fit definitions given to open education.

A brief description of each "open education" program included in this report is provided. The validity of an individual school district's decision to call a particular program an "open education" program, and, therefore, the validity of each study's findings, should be judged by the reader on the basis of the descriptive information presented.

TABLE 1

Eight Open Education Themes and Their Item Respresentation on the Rating Scale and Questionnaire (188: 200-201)

Sample Items	Number of Items	Correlation between Questionnaire and Observation
Provisioning for Learning: Manipulative materials are supplied in great diversity and range with little replication, i.e., not class sets. Children move freely about the room without asking permission. Talking among children is encouraged. The teacher does group children by ability according to tests or norms.* Children generally group and re-group themselves through their own choices.	25	.81***
Openness, Respect, Openess and Warmth: Children use "books" written by their classmates as part of their reading and reference materials. The environment includes materials developed or supplied by the children. Teacher takes care of dealing with conflicts and disruptive behavior without involving the group.* Children's activities, products, and ideas are reflected abundantly about the classroom.	4	.46***
Diagnosis of Learning Events: Teacher uses test results to group children for reading and/or math.* Children expect the teacher to correct all their work.* Teacher gives children tests to find out what they know. To obtain diagnostic information, the teacher closely observes the specific work or concern of a child and asks immediate, experience-based questions.	4	.48***
Instruction, Guidance, and Extension of Learning: Teacher bases her instruction on each individual child and his interaction with materials and equipment. The work children do is divided into subject matter areas.* The teacher's lessons and assignments are given to the class as a whole.* Teacher bases her instruction on curriculum guides or text books for the grade level she teaches.* Before suggesting any extension or redirection of activity, teacher gives diagnostic attention to the particular child and his particular activity.	5	.60***
Evaluation of Diagnostic Information: Teacher keeps notes and writes individual histories of each child's intellectual, emotional, physical development. Teacher has children for a period of just one year.* Teacher uses tests to evaluate children and rate them in comparison to their peers.* Teacher keeps a collection of each child's work for use in evaluating his development. Teacher views evaluation as information to guide her instruction and provisioning for the classroom.	5	.48***
Seeking Opportunities for Professional Growth: Teacher uses the assistance of someone in a supportive, advisory capacity. Teacher has helpful colleagues with whom she discusses teaching.	2	.18
Self-Perception of Teacher: Teacher tries to keep all children within her sight so that she can make sure they are doing what they are supposed to do.	1	.42***
Assumptions about Children and Learning Process: The emotional climate is warm and accepting. The class operates within clear guidelines made explicit. Academic achievement is the teacher's top priority for the children.* Children are deeply involved in what they are doing.	4	.11
Total and Canonical Correlation	50	.86***

*Reverse coding; 1, 2, and 3 asterisks respectively indicate statistical significance levels of .05, .01, and .001.

STUDENT ACHIEVEMENT

Perhaps no other aspect of open education arouses as much interest as student achievement. Advocates of open education claim that children can and do learn as much or more in an open school as they do in traditional schools, while others doubt that the informal atmosphere of the open school fosters learning. Critics question whether a child will gain basic skills in math and reading if given a wide choice of options and the freedom to pursue personal interests.

Traditional schools have assessed student academic achievement in a number of different ways, including teacher observation and the administration of teacher-made tests. In the last few decades school systems, teachers, parents, and students have given standardized achievement tests an increasingly important place in the evaluation of student progress. However, many proponents of open education question the use of standardized achievement tests to assess student achievement in open classrooms, contending that standardized tests stress rote learning and quick recall of facts (which are not emphasized in open education programs), while they do not measure certain effects of open education (such as increased levels of student responsibility, enjoyment of learning, creativity, and independent judgment). Although work is presently being done on the development of testing instruments that will be more applicable to the open classroom than standardized achievement tests, no such evaluation instruments are now available.

Research in Great Britain

Great Britain, which has been in the forefront of the open education movement, has evaluated extensively its open education program for elementary age children. The results of this evaluation by the Central Advisory Council for Education were published in 1967 as *Children and Their Primary Schools* (33). Popularly known as the Plowden Report, its authors conclude that the continuation and expansion of open education programs in British infant and junior schools would be educationally beneficial.

The Plowden Report includes results from research conducted to compare student achievement in open and traditional British schools. A cross sectional study was done of pupils in the junior schools (children of ages 7-11). Four tests in reading, English, mechancial arithmetic, and problem arithmetic were developed and used. Analyses of the test results led to the following conclusions:

> A straight comparison between streamed and non-streamed schools showed that pupils in the streamed schools had slightly higher mean scores on the attainment tests. [Streamed schools are schools in which students have been grouped into classes by ability. Non-streamed schools more closely follow the open education program.] The differences were greater the more the test reflected "traditional" practice: they were largest for mechanical arithmetic and smallest for reading (33: 589).

The authors of the report caution against giving too much weight to these results for a number of different reasons: (1) although an attempt was made to find or develop tests that favored neither type of school organization, they believe that the tests were biased toward the curriculum of the traditional schools, (2) the differences between students from open and traditional schools were statistically significant, but not large. The difference often amounted to two or three more right answers in a test having 30 or 40 items (3) children from the more open schools tend to be slower starters, but they generally catch up with traditional students by the time they finish elementary school, and (4) the differences were not controlled for social class or teacher attitude or beliefs. Once these factors are controlled, the differences in achievement test scores may diminish or disappear (33: 573, 575, 576, 589).

Research in the United States

Eight recent American studies on student academic achievement in open education are presented in the remainder of this section of the *Research Brief*. On the elementary school level, two studies were favorable to open education, while one had mixed results tending to favor the traditional school. One study of student achievement at the junior high level was favorable to open education, while two other junior high studies and one on the senior high level report statistically insignificant differences in achievement levels of students in open and traditional schools.

Elementary School. Administrators of the Hackensack New Jersey Public Schools report favorable results in their study, "Overview and Evaluation of Project LEM: Innovative Education in Action." Funded under Title III of ESEA, Project LEM (Learning Experience Module) was an open education program developed in 1970 for a three year experimental period.

Project LEM was developed for a racially and socially heterogeneous district. From this district, Hillers Elementary School was selected as a target school. At the time of its selection, Hillers was overcrowded and characterized by the low achievement scores of its students. In 1969-70, 60.1 percent of Hillers' students scored below the 50th percentile and 45.9 percent tested below the 30th percentile in reading on the California Achievement Test. In math, 45.8 percent of the students scored below the 50th percentile, and 29.2 percent scored below the 30th percentile.

Project LEM had several specific goals, among them improvement of the students' reading and math skills and social competence, an increase in teacher competencies and parent involvement, and the efficient use of school facilities.

Teacher preparation for the new program included a 6-week summer workshop and 10 sessions with a psychotherapist. These sessions dealt with changing individual perceptions and altering stereotyped social attitudes, thus helping teachers work effectively with disadvantaged, underachieving students. Workshops were held for parents, and home visits were made to 25 percent of the students' homes.

The physical plant also underwent important changes prior to the initiation of Project LEM in September 1970. Walls were removed to provide open space, and room for 125 students was made from classroom space that had formerly accomodated 100 students.

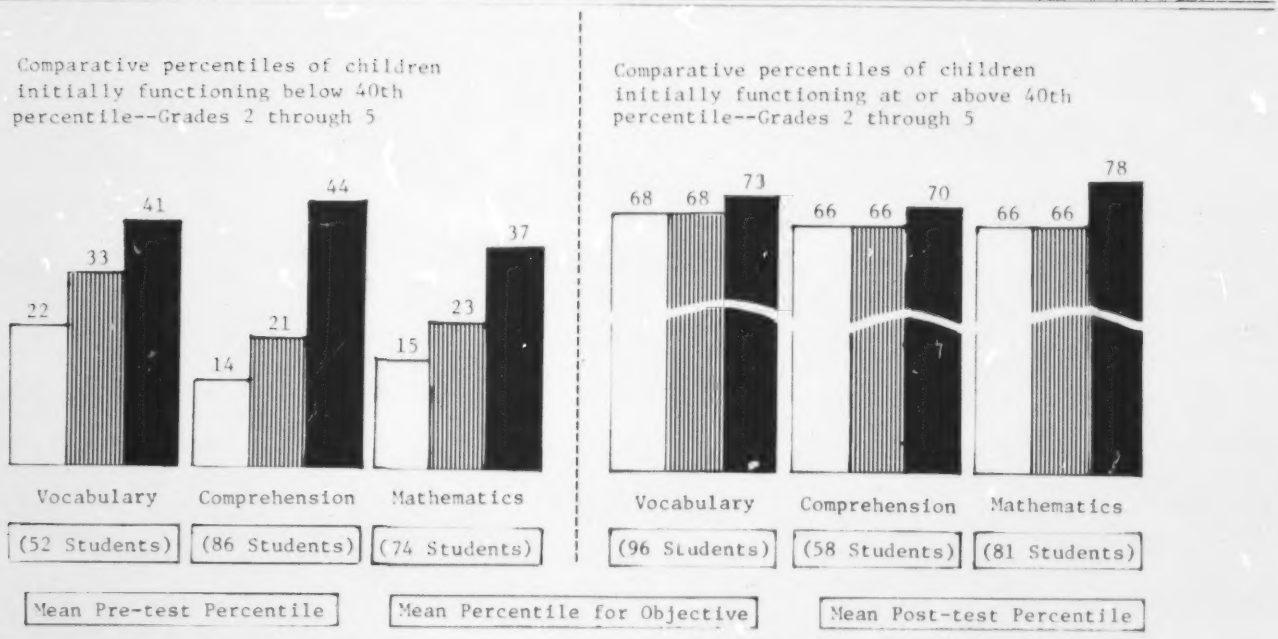
In September, teachers in Project LEM were divided into three teams. Each team had a leader, an aide, and one regular teacher for every 25 students. Students were organized on an academically heterogeneous basis in "home based" groups and were assigned to specific teachers for daily meetings. Small skill groups were developed for math and reading. Social studies, science, and cultural arts were taught to "home based" groups, with each teacher in a team choosing to teach a subject in his or her area of particular competence. To individualize instruction, numerous activity cards and packets were made for independent student use.

The California Achievement Test scores of Project LEM students are shown in Figure 2. This chart provides information on mean pre-test percentile, mean post-test percentile that the Project LEM developers hoped for, and the actual mean post-test percentile of children in grades 2-5 who has scored above and below the 40th percentile during a previous administration of the test.

In each case, the stated test goal was surpassed. The degree to which the goal was surpassed is particularly evident in the case of those children who has scored below the 40th percentile on the pre-test. The mean pre-test percentile ranking for children in this group was 22 in vocabulary; the stated objective was for children in this group to score in the 33rd percentile on the post-test. The children in fact scored in the 41st percentile on the post-test. Students ranked in the 14th percentile on the pre-test in comprehension. The goal was the 21st percentile on the post-test. The children far exceeded the goal and reached the 44th percentile on the post-test. In mathematics, the mean pre-test score

Figure 2

Academic Achievement - Project LEM (77:8)



ranked this group in the 15th percentile. The mean post-test goal was the 23rd percentile, while the mean post-test scores ranked the children in the 37th percentile.

An OEO-sponsored study included research on student achievement in an open school as compared to student achievement in traditional schools, schools with performance contracting programs, and schools to which children from poverty areas were bused. Findings of this research project are reported in "The Office of Economic Opportunity Experiment in Educational Performance Contracting" (published in 1972 by the Battelle Memorial Institute).

The main purpose of this study was to determine the effects on student achievement of performance contracting as opposed to traditional school programs in 18 selected school districts. Six companies with varying technological approaches were chosen to participate. All of the children who participated came from low-income families.

In addition to comparing the achievement of the experimental and control groups, the researchers decided to include two "special treatment" groups--one in Grand Rapids, Iowa, and another in Hartford, Connecticut, both of which were in schools that previously had established independent programs to improve the academic achievement of disadvantaged children. In Grand Rapids, the program included learning centers, reading centers, and a new reading program (Project Read). In Hartford, an open education program had been established at Waverly Elementary School in the same low-income area that provided students for two of the OEO study's experimental and control groups. Another Hartford program (Project Concern) involved busing children from schools in low-income black populated areas to schools in predominantly white middle class areas.

The California, Stanford, and Metropolitan Achievement Tests were used to measure student achievement in the experimental, control, and special treatment groups. While the researchers found no evidence that the use of performance contracting increased student achievement, the additional comparisons of special treatment groups led to affirmative conclusions regarding the open education program at Hartford's Waverly Elementary School.

As Table 2 indicates, the test results favor the Waverly special treatment group in every case in which a significant difference in achievement scores was found. The open school program had a more beneficial effect than performance contracting or traditional programs in reading at the first grade level and in math at the second and third grade levels. It was just as effective as the traditional program in math at the first grade level, and reading at the second and third grade level. In no case was the impact in favor of the experimental performance contracting group. Project Concern had a more favorable impact than the experimental group in only one case--second grade reading.

TABLE 2

Comparison of Student Achievement in Control, Experimental, and Special Treatment Groups (155: 133)

	Grade 1				Grade 2				Grade 3			
	Reading		Math		Reading		Math		Reading		Math	
Programs	E/ST	C/ST	E/ST	C/ST	E/ST	C/ST	E/ST	C/ST	E/ST	C/ST	E/ST	C/ST
Waverly School	ST	ST	ST	N	ST	N	ST	ST	N	N	ST	ST
Project CONCERN	N	N	N	C	ST	N	N	N	N	N	N	N

E denotes an impact in favor of the experimental, performance contracting group.
C denotes an impact in favor of control groups in traditional classrooms.
ST denotes an impact in favor of the special treatment groups.

The Broward County School Board (Fort Lauderdale, Florida) studied student achievement in its new open plan schools and contrasted it with student achievement in conventional schools. The results of their study were reported in *Evaluation of Innovative Schools: Student Achievement 1970-71* (22).

The California Test of Basic Skills (CTBS) was used to assess student achievement. Tests were administered to students in the third, fifth, and eighth grades at innovative open schools and traditional schools. Analysis of the results indicated that students from open schools performed strongest at the third grade level. This trend was particularly evident for black male students. Students from conventional schools did better on the test at the fifth grade level--particulary white male students. Tests given to eighth grade students favored the traditional schools, except in the case of black male students.

The researchers qualified their results by calling for further longitudinal studies to assess student achievement over a longer time span. They also noted that teachers in the open plan schools believed that their new educational program had not been fully implemented and that the open schools were overcrowded and understaffed.

Junior High School. Alan F. Sewell and Allan W. Dornseif report on student achievement in an Illinois study involving 280 seventh and eighth grade students from O. W. Huth Upper Grade Center (a junior high school in Cook County) (174). Taking part in the OSCAR program (Open Space for Concentualizing Attitudes and Responsibilities) were 140 students; another 140 students attended classes that were organized on a conventional basis. The study population was heterogeneous in its class and ethnic makeup. It included children of middle class, blue collar, and welfare families, whites, blacks, Mexican-Americans, and Oriental-Americans.

Students in the OSCAR program attended a "school within a school" where one open classroom had been constructed using the area formerly occupied by five classrooms. The 140 OSCAR seventh and eighth grade students, four teachers, and two aides shared this open space. Each of the four teachers specialized in one of the following subjects: language arts, math, science or social studies. The school day was organ-

ized around these four disciplines, with the amount of time given to each subject determined by the OSCAR team. Contracts, projects, and an individualized math skill development program were part of the interdisciplinary curriculum. Subjects such as physical education, home economics, and shop were taught in other classrooms by other teachers. The freedom of OSCAR students was, according to Sewell and Dornseif, quite limited but greater than that allowed in a traditional junior high program.

Achievement, personal growth, social development and attitude tests were administered to OSCAR and control students in October 1972 and January 1973. Grouping (OSCAR or traditional), grade, and sex were the independent variables. (For results of student personal growth, social development and attitude tests, see p. 18. For analysis of research on OSCAR teacher behavior see p. 25. For parent reaction to the OSCAR program see p. 28.)

Student achievement was measured by the use of the Stanford Achievement Tests. After analyzing the test results, researchers concluded that there was no significant difference in achievement between the OSCAR students and students in the traditional program.

The Eugene (Oregon) Public Schools conducted a study on the relationship between student attitude towards school and academic achievement in math. One of the two junior high schools that participated in the study was organized on the "open flexible" model, while the other was organized in the traditional manner. There were no course requirements in the open school; the curriculum was developed co-operatively by students and teachers. Students took nine-week courses and were given written evaluations rather than regular grades; they received credit or an incomplete rating for each course at the end of each nine-week session. Independent study was offered to all students.

The open junior high school was organized on the "house" system. Each "house" included 20 to 30 students and a teacher-advisor whose responsibilities were greater than those of a homeroom teacher in a conventional school. Both the traditional and open schools had strong academic ratings and similar student populations.

Seventh grade students of average math ability were tested using the Metro '70 Advanced Form F to measure student achievement in math concepts, computation, and problem solving. The researchers used a 40-item scale developed by Fosmire at the University of Oregon and a nine-item scale developed by the school district to gain data on student attitude and peer relationships. No statistically significant relationship was found between attitude toward school and achievement in mathematics among the students at the two junior high schools.

Another study contrasting student achievement at the junior high level in open and traditional schools in Eugene was made by Phil George for Oregon University's School Study Council. The results of this study are favorable to the open school, Roosevelt Junior High School. The scores of Roosevelt students on various tests were compared with district averages and the scores of students from Spencer Butte, a conventional junior high school also located in Eugene. The student populations of both schools were predominantly middle to upper middle class.

In 1968 the plan to experiment for three years with an open education program at Roosevelt Junior High School was approved. The new program involved the following features: each semester was divided into nine-week sessions; most of the 250 courses offered were elective.

Students at Roosevelt arranged their own course schedules for submission to their respective parents and "House Advisor." House Advisors were teachers who had 20 or fewer randomly selected students to advise. Each "house" met for 30 minutes a day. Rather than adhering to the customary grading system used at the school, students received a written evaluation at the end of the nine-week session and were given credit or an incomplete course rating.

The Iowa Tests of Educational Development and the Gates-MacGinitie Reading Test were administered to gain information on the academic achievement of Roosevelt students in relation to district averages. Comparisons also were made of the math achievement of seventh grade students at Roosevelt and Spencer Butte.

The following results were reported (70: 20-21):

- Based on composite and math scores, Roosevelt students scored above the district average on the Iowa Tests of Educational Development, although not necessarily above the average score of all district schools in every academic area. The Iowa tests were administered to students in the ninth grade.

- The average scores of Roosevelt students on the Gates-MacGinitie Reading Test were above district averages, although not necessarily the highest for each grade level in the district. The Gates-MacGinitie Test was administered to all junior high school students in 1971-72.

- Students at Roosevelt scored slightly higher than Spencer Butte students in twelve comparisons made of the math achievement of a sample of seventh grade students at the two schools. In four cases, the differences were statistically significant.

- There were no significant differences in sophomore grade point averages at Roosevelt and Spencer Butte.

- At the end of two and a half years (10 quarters) an analysis of courses taken by Roosevelt ninth graders was made. The program encouraged course variety, and a wide range of courses was selected by students. A comparison of the percentage of students who took the same number or more courses than were previously required in the conventional program is listed below:

English	71 percent
Social Studies	64 percent
Mathematics	67 percent
Physical Education	31 percent
Science	75 percent

Senior High School. A Bellevue (Washington) study evaluated student achievement in an open setting at Interlake Senior High School (118). There the open campus policy was limited, but it allowed students more freedom than they had had prior to its adoption. The Bellevue superintendent and Board of Directors approved the following specifications for the open campus policy:

1) No open campus privileges. . .shall be in conflict with state statutes and rules and regulations of the State Board of Education.
2) The open campus privilege would be provided for seniors during lunch and SST periods. [SST = student structured time]
3) The open campus privilege would be provided for 10th and 11th graders during lunch periods.
4) The open campus privilege would be provided for students who have three or less scheduled classes.
5) The open campus privilege would be provided for students who have SST periods at the beginning or the end of the school day.
6) The open campus privilege would be provided for students beyond the academic year 1971-72 if judged by the office of the Superintendent as advantageous to parents, patrons, teachers, administrators, and students of the Interlake High School community (118: 1).

Student achievement was evaluated at Interlake by comparing student grade point averages before and after the establishment of the open campus program. Grade point averages for sophomores, juniors, and seniors rose slightly in the first semester of the open campus program as compared to the last semester under the traditional program. This was consistent with a slight rise in grade point averages at other area high schools, and was not considered to be significant by the researchers. (For information on teacher, student, parent and community reactions to the Interlake open campus policy, see pp. 19, 23, 28, 29).

Advocates of open education place great importance upon the promise that open education humanizes and personalizes education. They contend that the role of emotions should not be denied within the school setting. In their writing, equal stress is given to the affective and cognitive growth of students.

Charles Silberman and other proponents of open education point out that childhood and the years spent in school are valuable in and of themselves and not just as a time to acquire particular cognitive skills that prepare one for an adult role in the working world. Supporters of the open education movement believe that a child should enjoy school and that open education provides an atmosphere that produces such enjoyment.

Roland S. Barth, another advocate of open education, lists seven characteristics of open education that he believes are associated with a child's enjoyment of school.

1. A child's enjoyment of school is related to the number of significant *options* available to him each day.
2. A child's enjoyment of school is related to his having significant *choice* in determining the activity in which he will be engaged.
3. A child's enjoyment of school is related to his being able to *pose his own problems* and determine the manner in which he will pursue them . . . with respect to the materials and activities available to him.
4. A child's enjoyment of school is related to the extent he is permitted to *collaborate* with his peers.
5. A child's enjoyment of school is related to the extent to which he is *treated* by adults.
6. A child is likely to enjoy school to the extent that it has a climate of *consistent order*.
7. A child's enjoyment of school is associated with the extent to which explicit and implicit *comparisons* between his performance and the performance of other children are *minimized* (12: 195-200).

To the proponents of open education, the increased enthusiasm and enjoyment of learning, and the greater respect for different personalities and growth patterns are as important as (if not more important than) improved scores on standardized achievement tests. Open education, they contend, will allow a child more freedom, more responsibility, and more opportunities for pleasure within the school. Children, in their view, will develop more confidence, independence, and self-esteem as a result of open education, and these qualities are as valuable to them now and in later life as an increased proficiency in mathematics.

Research studies concerning open education and student attitude and behavior are limited in number and are not totally consistent in result. Eleven related studies are described in this section of the *Research Review*. They deal with research in open education's effect on student self-concept and conforming behavior, student behavior and use of time, attitudes toward open education, and the transition of students from open to traditional classrooms.

Student Self Concept

Three studies on open education and student self-concept were located. One, by Jane Ruedi and Charles K. West, reports no significant difference between the self-concept of children in open and traditional classrooms (170). Another study, conducted by Norman Louis Heimpartner, reports significant differences in self-concept between groups of students in open and traditional school settings (83). A third study by Terrance P. Kohler reports sex related differences in self concept between open and traditional groups of students (99).

The Ruedi and West study compared the self-concept of 48 fourth, fifth, and sixth grade children--24 from an open school and 24 from a conventional school. The two schools were located in the same community. Students in the experimental and control groups were matched with regard to Stanford Word Meaning scores and grade.

Gordon's How I See Myself Scale was used to determine if significant differences could be found between the two groups in their total composite self-concept scores and/or in their scores on the Autonomy,

Interpersonal Adequacy, Academic Adequacy, and Teacher-School sections of Gordon's Scale.

The researchers' hypothesis-that students from the open school would have significantly higher scores on the self-concept scale-was not supported by the test results. Of 20 comparisons made, one (the Teacher-School factor) revealed a significant difference in the predicted direction. The Teacher-School factor consisted of the following five items.

1. Teachers like me.
2. I get along well with teachers.
3. I like teachers.
4. I like school.
5. School is very interesting.

As shown in their responses, students in the open school viewed teachers and school more favorably than students in the traditional school. Within the group of "open" school students, this positive view of teachers and school was consistent for both high and low achievers. At the sixth grade level, there was a significant difference in scores on the Academic Adequacy factor in favor of the traditional school students.

In evaluating the results of their study, Ruedi and West caution against overgeneralization of their conclusions. They question the use of a single criterion--self-concept--in evaluation a school program, and point out that the number of students included in this study was quite small.

Norman Louis Heimgartner's research, reported in *A Comparative Study of Self-Concept: Open Space Versus Self-Contained Classroom* (83), led to markedly different conclusions than those drawn by Ruedi and West. Heimgartner studied 216 children from the primary and intermediate levels of the University of Northern Colorado's Laboratory School and children from grades K-5 in a traditional school in School District Six of Greeley, Colorado. Primary and adolescent forms of the Self-Social Symbols Tasks and the Children's Self-Social Constructs Test were administered in October and May of the school year to determine if the children from the open environment Laboratory School differed significantly in self-concept from those in the conventional school.

After analyzing the results of these two tests, Heimgartner concluded that:

- Students from the open space school indentified more closely with the group than children from the traditional school.
- At the same time students from the open school indentified less with particular friends than those in the control group. Open space students had greater individuation and greater group indentification than those from the traditional school. [Individuation refers to whether a person views himself as similar to or different from other members of the group.]
- The self-esteem of children in the open space school increased between October and May, while the self-esteem of students in conventional classrooms decreased.
- Children from the open space school indentified less with one particular teacher than those from the traditional school.
- Children from both open and traditional schools viewed the relationship of their size to that of an adult in the same manner. No significant difference between the two groups was found in this area.

Terrance P. Kohler's 1972 study, *A Comparison of Open and Traditional Education: Conditions that Promote Self Concept*, describes an in-depth study of the relationship of the open school and student self concept (99). The 316 students studied by Kohler were nine to twelve years old and attended one of three open or three traditional schools. All of the schools were private, suburban, and upper middle class with similar teacher-student ratios.

Kohler's research involved intensive observation and the use of various research instruments. The Walberg-Thomas Scales were used to rate each school in terms of "openness." (See introduction for further information on the Walberg-Thomas Scale.) The Sears Self-Concept Inventory was used to measure student self-concept. It provides information in six areas of self-concent, including student self satisfaction with regard to physical and mental ability, attractiveness, and work habits. It also asks students to predict their possible academic improvement and to rate themselves in comparison with others.

Kohler found that no significant difference in self-concept existed between female students in the open and the traditional groups or between males and females in the traditional group. He did, however, find significant differences in the self-concept of males and females in the open schools and between males in the open and traditional schools. In both cases, higher levels of self-esteem were noted among males in open schools. Male students from open schools have a higher self-concept than females in open schools, in contrast to the lack of significant difference between males and females in the traditional school. Kohler also found that males in open schools have a higher self-concept than males in traditional schools, as compared to the lack of difference in self-concept between females in open and traditional schools.

Citing Campbell, Bledsue, Fink, and Clifford's works, Kohler notes that research in the field of student self-concept indicates that "academic achievement seems more strongly linked with self-concept for males (99: 8)," and that males differ more in self-concept than do females.

Conforming Behavior

Mark Bleier, Howard Groveman, Nancy Kuntz, and Edward Mueller of Boston University studied the effect of open education on the conforming behavior of students. Their study was published as *A Comparison of Yielding to Influence in Open and Traditional Classrooms* in October 1972 (17).

In researching the nonacademic affects of open education, Bleier, Groveman, Kuntz, and Mueller selected two third grade classes from a public elementary school in Boston. The two classes were comparable on the bases of age, sex distribution, IQ, class and ethnic background, and scores on the Metropolitan Achievement Test.

One class was organized in accordance with open education concepts, while the other was traditional in its organization. In the open classroom, children were free to choose from a large number of different activities and met regularly with their teacher to discuss their individual progress. Most activities in the open classroom were individual or group activities and did not directly involve teacher instruction; some small group instruction did occur. In the traditional classroom, a standard curriculum was used; activities were selected by the teacher and whole group instruction was prevalent.

Both classes were given a general knowledge questionnaire. Each questionnaire had answers already penciled in. The children were asked to disregard the answers and were told that these answers had been given by another class which had not followed test directions properly. The students were not required to put their names on the test, and an attempt was made to encourage a relaxed, tension-free testing atmosphere.

The children were then told to rate each item of the test "hard" or "easy" and to answer each question independent of the "suggestion" given by the penciled in answers of previous test-takers.

To analyze student responses, the researchers developed the following four categories of responses:

1. correct responses conforming to a "suggestion"
2. correct responses not conforming to a "suggestion"
3. wrong responses conforming to a "suggestion"
4. wrong responses not conforming to a "suggestion" (17: 48)

It was hypothesized that the only significant difference between the students from the open and traditional classes would be in their responses to hard questions. It was anticipated that students from the treaditional class would "yield to the influence" of incorrect penciled-in answers to hard questions more often than students from the open class.

As Table 3 indicates, the researchers' hypothesis was verified by the test data. Children in the two types of classes agreed on the classification of test items as "hard" or "easy," and no significant differences were found between the two classes in their responses to easy questions or in their responses to hard items in categories 1, 2, and 4. A significant difference was apparent in student wrong

responses conforming to suggestions on hard items (response category 3). The mean number of responses in this category was 5.71 for students from the traditional class and 2.40 for students from the open class. Students from the conventional class yielded to the influence of someone else's incorrect response to difficult questions more than twice as often as students from the open educational environment.

From this study, the researchers concluded that children from open classes have more confidence in their own abilities and are more likely to trust their own ideas than children from traditional classes.

TABLE 3

Questionnaire Responses of Students from Open and Traditional Classes (17: 48)

Mean Number of Responses

HARD ITEMS

Response Types	Open Class	Traditional Class
1. Correct responses conforming to "suggestions"	.53	.76
2. Correct responses not conforming to "suggestions"	5.0	3.71
3. Wrong responses conforming to "suggestions"	2.40*	5.71*
4. Wrong responses not conforming to "suggestions"	5.33	4.43
Total	13.40	14.62

EASY ITEMS

Response Types	Open Class	Traditional Class
1. Correct responses conforming to "suggestions"	5.00	4.99
2. Correct responses not conforming to "suggestions"	10.40	10.28
3. Wrong responses conforming to "suggestions"	3.33	3.48
4. Wrong responses not conforming to 'suggestions"	2.27	1.14
Total	21.00	19.86

* p< .05

Student Behavior and Use of Time

Advocates of open education stress that it allows students of all ages to develop responsible and independent behavior. They contrast this to the traditional education setting in which adults are expected to provide constant guidance and close supervision of all student activity. The following studies of student behavior in an open learning environment tend to support the claims of open education proponents.

The York County Board of Education in Aurora, Ontario (Canada) developed a research project aimed at comparing the in-school behavior of students in four open plan and three traditional county elementary schools. The schools were matched on the basis of student class background, geographic location, and age. Students observed in the study were randomly selected. Fifteen case studies were completed, of which 10 are included in the report titled *A Day in the Life: Case Studies of Pupils in Open Plan Schools*, published in 1970 (201).

Seven elementary school principals and two master teachers were used as observers. The observed students ranged from kindergarten to eighth grade level. The Classroom Environment Code Digest, a variant of the Flanders Interaction analysis technique, was used along with the "shadow study" research method. The shadow studies involved the discrete observation of a child for an entire day. The overt

behavior of the child was recorded once every 10 minutes by the trained observer. Children used in the shadow study also were interviewed at the end of the school day.

An analysis of the collected data led the researchers to the following conclusions:

- Students in open plan schools initiated activities on the basis of their own interests and were allowed to pursue their activities to completion.
- Open plan school students generally exhibited personally responsible behavior.
- In the open plan schools, co-operative planning occured invclving much teacher-student and teacher-teacher interaction.
- A spirt of inquiry was evident in the open plan schools as students developed questions pertinent to their independent activities.

The observers also noted a greater amount of interpersonal interaction and a higher degree of accessibility to learning resources at the open plan schools than were evident at the traditional schools.

Research on student behavior in the open school setting was done by Ocea Goldupp in 1972 as a part of a larger study of different teaching techniques used in the Headstart program. This study, reported in *An Investigation of Independent Child Behavior in the Open Classroom: The Classroom Attitude Observation Schedule* (72), was intended to test the premise that children in an open classroom are rewarded for learning by their individual success and by their use of interesting materials rather than from an external source.

A new research instrument, the Classroom Attitude Observation Schedule (CAOS), was developed and eight pre-school classes selected for study in Lincoln, Nebraska. Six of these classrooms used the Tucson Early Education Model (TEEM) curriculum, and were comparable to open classrooms. The other two classrooms used locally developed, more traditional curricula.

Each of the classrooms were observed for a 36 minute interval which was divided into three periods. During the first 12 minutes, both the teacher and students were present in the classroom. As pre-arranged, the teacher and all adults other than the observer then left the room for the second 12 minute time period. For the last 12 minutes, termed the "reinstitution" period, the teacher returned to the classroom and resumed normal class activities.

Trying to attract as little attention as possible, the trained observer recorded instances of "inappropriate behavior" that occured during each of the 12 minute periods in each classroom. (Inappropriate behavior was defined as: hitting, yelling, interfering with another child's activity, leaving the room without permission, throwing objects, or other patently disruntive actions.) Observers also recorded the location and activities of the children and adults at two minute intervals.

Analysis of the observation data showed that there was no significant difference in the levels of inappropriate behavior in the open and traditional classrooms when the teacher was present. There was, however, a significant difference in the incidence of inappropriate behavior when the teacher was out of the classroom. As Figure 3 illustrates, there was a greater number of inappropriate behaviors in both types of classrooms when the teacher was gone. Traditional classrooms had a much higher incidence of such behavior than did open classrooms.

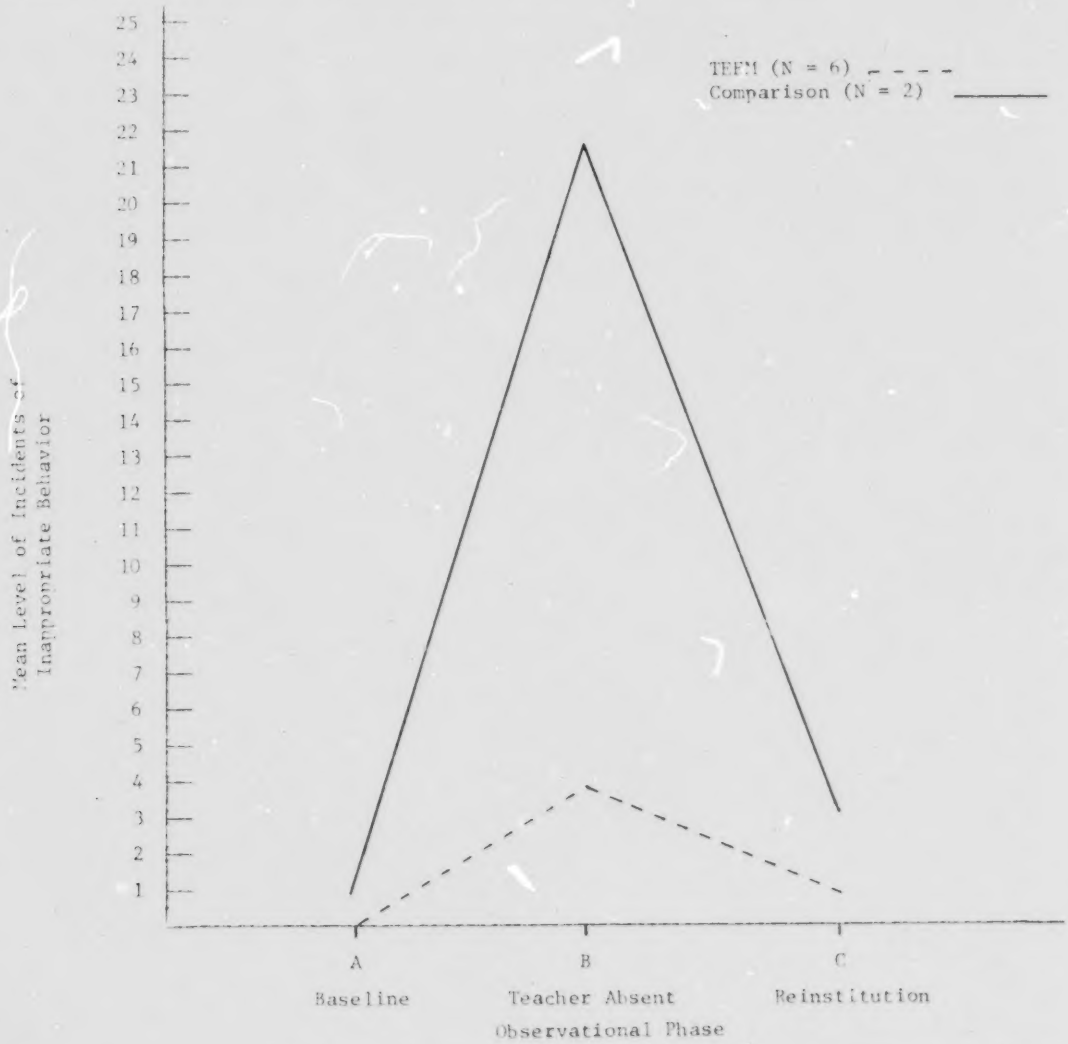
In the traditional classroom there was a mean of over 21 incidents of inappropriate behavior during the teacher's absence compared with a mean of four incidents of this type of behavior in the TEEM classrooms. The traditional classrooms, therefore, had five times as much inappropriate behavior as the TEEM classrooms when adult supervision was not present.

Goldupp concludes from this study that children in open classrooms internalize behavior controls to a greater degree than children in traditional classrooms. Children in open classrooms were not as often interested in exhibiting disruptive behavior as children in conventional classrooms because they found sufficient satisfaction in their independent learning activities.

Goldupp also discovered a relationship between stable patterns of operation (ones with few inappropriate student behaviors) and the amount of time adults spent interacting with children rather than

Figure 3

Incidents of Inappropriate Learning Behavior in TEEM and Comparison Classrooms Across Observation Phases (72: 25)



engaging in management activities. The more time the adults spent interacting with the students and sharing in their activities, the less likely the incidence of inappropriate behavior, regardless of whether the teacher was present or absent from the room.

Student Attitudes

Several different studies have been done to determine student attitudes toward open education. Of the five studies described below, four reported slightly to strongly positive reactions to student experience with open education, while one reported findings slightly favorable to traditional education.

Alan F. Sewell and Allan W. Dornseif report on student reaction to open education in *Controlled Multivariate Evaluation of Open and Traditional Education at the Junior High School Level. Preliminary Report* (174). This study involved 280 seventh and eighth grade students from a school in Cook County, Illinois. One hundred forty of the students took part in the OSCAR program, an experiment with open education. The other 140 control group students followed a traditional junior high program. (See pp. 9 and 10 for further details on the OSCAR program.)

Tests of personal growth, social development, and attitude were administered to the OSCAR and control students in October 1972 and January 1973. (Plans were made to retest in May 1973). Grouping (OSCAR or traditional), grade and sex were the independent variables. An attitude scale was developed for this study; it measured academic, personal, and social aspects of student attitude towards self, teacher, education, and the school district.

Test results showed that on the personal growth and social development test, grouping made no significant difference. Students from open and conventional classes did not have significantly different attendance records. Students in the OSCAR program, however, did differ from students in traditional classes in their attitude test scores. Analysis of the data showed a slight gain in attitude for the OSCAR students. (For results of student achievement tests, see p. 10; for teacher behavior and attitude, see p. 25 and for parent attitude, see p. 28.)

Another study (which included a questionnaire to elicit information on student attitude toward the open school) was conducted by O. A. Oldridge. *Overlander: A Study of Instructional Innovation Involving Beginning Teachers Attempting to Navigate an Open Area Elementary School* was published in 1972 (132).

The Overlander Elementary School was established as an open school in Kamloops, British Columbia (Canada) in the Fall of 1968. It was staffed entirely with beginning teachers who had received training in open classroom and non-graded techniques from January to April of 1968. The student population was 215, of whom 40 were Canadian-Indian children who had never been to school.

After an open education program had been in operation for one school year with no outside control, an evaluation study was conducted. Children above the primary level (132 of the total school population of 215) were given an attitude questionnaire. The responses of students are presented in Table 4.

TABLE 4

Overlander Student Responses to an Attitude Questionnaire (132: 8A)

	Girls		Boys		Total	
	Yes	No	Yes	No	Yes	No
	%	%	%	%	%	%
1. Have you gone to school in Overlander all this year?	75	25	82	18	78	22
2. Has going to Overlander been much different from other schools? In what way?	93	7	100		97	3
3. Have you enjoyed going to Overlander more than the last school you attended? What did you enjoy most?	67	33	83	17	75	25
4. Did you have much trouble getting used to the open-area building?	24	76	23	77	24	76
5. Would you rather go to school in this kind of a building than in one with classrooms?	60	40	71	29	66	34
6. Can you study as well in Overlander as you could in a regular classroom?	43	57	71	29	57	43
7. Do you feel you have learned as much this year as you did last year?	55	45	78	22	67	33
8. Do you feel you have had more freedom in school this year?	91	9	97	3	94	6
9. Do you believe the kind of freedom you have had in Overlander is good for students your age?	67	33	74	26	71	29
10. Do you like having more than one teacher working with you?	76	24	86	14	81	19
11. Are you getting to study more things this year that interest you, than you did last year?	67	33	86	14	77	23
12. Do you think you are having to learn a lot of things that won't help you much in the future?	37	63	18	82	28	72
13. Do the teachers expect you to do more school work than you can?	24	76	11	89	18	82
14. Do you feel you are getting more tests this year than you did last year?	33	67	12	88	23	77
15. Have you been absent from school more days this year than last year?	33	67	29	71	32	68

Questions 7, 10, 11, 13, and 14 deal with student reactions to the instructional program. Questions 2, 3, 8, 9, and 15 deal with students' general reaction to the open school, and questions 4, 5, and 6 elicit student reaction to their school building.

As the responses of the students indicate, their attitude toward the instructional program, school climate and atmosphere, and the new type of school building were highly favorable. Ninty-seven percent of the students found their new open school significantly different from the traditional schools previously attended. Seventy-five percent of the students enjoyed going to Overlander open school more than they had enjoyed going to a conventional school. Sixty-seven percent believed that they learned as much at Overlander. Ninety-four percent believed that they had greater freedom at Overlander, and 71 percent believed that this freedom was beneficial to students their age. Eighty-one percent enjoyed working with more than one teacher, and 77 percent thought they had greater opportunities at Overlander to study things that interested them than was true at traditional schools.

The reaction of male students is of particular interest in this and other studies of open schools. Boys responded more positively than girls on every item of the student attitude questionnaire. As many educators have pointed out, girls generally adjust to conventional schools more readily than boys. At Overlander open school, male students exhibited very favorable attitudes towards school and the new freedom they were granted in a flexible setting.

The Oregon School Study Council reports favorable student reactions to open education in *The Roosevelt Program: Changing Patterns in Education at Roosevelt Junior High School*. A new, flexible program for Roosevelt Junior High School was approved in 1968 as a three year experiment. It involved adopting a nine week quarter system, an altered schedule, several high interest courses, a new grading system, and the House system of advisors. (See p. 10 for a more complete description of the Roosevelt program. See p. 28 for parent reaction.)

A one-year study of seventh grade students at Roosevelt and Spencer Butte Junior High School, a nearby conventional school, was completed and published with other evaluative material in 1973 (70). Fourteen groups of questions were used to compare student attitude towards school at Spencer Butte and Roosevelt. The most important difference in attitude between the two groups was found in answers to questions "that focused on encouraging students to participate in deciding how classes will be conducted." Roosevelt students had significantly higher scores on these questions than students who attended Spencer Butte.

In addition, 16 seventh grade students were interviewed four times during the school year. Between October and May, the number of positive comments about the Roosevelt program increased.

The Bellevue Public Schools of Bellevue, Washington, evaluated a senior high level open education program in 1972. Their report, *An Evaluation of the Open Campus Policy at Interlake Senior High School* (118), deals with reactions of students, faculty, parents and the local community to the new organizational pattern.

Questionnaires were used to gain information on student reactions at the end of the first year of the open campus policy. Analysis of the questionnaire responses revealed the following:

- Ninety-two percent of the students advocated continuation of the open campus policy, with 12 percent favoring some modification in the program. The changes suggested most frequently in the program were the extension of the open campus to all students and alteration of the attendance policy.
- Seventy-five percent of the students felt that the open campus policy had much or some effect on their behavior and attitude. Eighty-six percent of this group believed that the effect had been positive in nature.
- Seventy percent of the students felt more responsible for their actions in the open campus school as opposed to a traditional high school.
- Sixty-five percent believed that they had the ability to manage their own time.
- Approximately 50 percent had a positive attitude towards the teaching and administrative staff.
- Students were more positive than negative towards the open campus policy on all 16 items of the student attitude questionnaire.

In addition, researchers reported that student attendance improved after the open campus policy had been put into effect.

A study of an open school program which revealed slightly negative findings was done by the Broward County School Board of Ft. Lauderdale, Florida. In this study, the Student Attitude Questionnaire and the Teacher Attitude Questionnaire were used to gain information on reactions to three different types of schools by fifth year pupils and their teachers in 1970-71.

The three types of schools were: new, innovative schools following the open plan approach; traditional schools with self-contained classrooms and traditional curricula; and "Nova schools"--established schools having a highly individualized program.

Results of the questionnaire are shown in Table 5.

TABLE 5

Broward County Student Responses to an Attitude Questionnaire (21: 27)

Question	Innovative Schools n = 2867	Conventional Schools n = 1556	Nova Schools n = 245
When I think about most things in this school, I:			
Feel happy	69.0%	70.6%	78.4%
Don't care	18.2	16.0	16.3
Feel unhappy	12.8	13.4	5.3
Being in this school makes me feel proud and important:			
Most of the time.	35.2	39.4	51.9
Some of the time.	51.9	49.0	45.7
None of the time.	12.9	11.6	2.4
Being in this school:			
Makes it hard for me to have friends.	8.8	10.8	11.8
Makes it easy for me to have friends.	41.5	44.9	36.7
Doesn't make it any easier or harder to have friends.	49.7	44.3	51.5
When I am in school, I most often feel:			
Relaxed.	59.1	61.5	74.3
Upset and tense.	16.5	15.9	10.2
Confused.	24.4	22.6	15.5
My teachers seem to like me.			
Yes	49.3	56.8	50.2
No	14.8	10.8	6.1
Don't know	35.9	32.4	43.7
I would rather:			
Learn things on my own.	17.2	11.8	24.1
Work with other students to learn.	29.1	25.5	40.8
Have a teacher teach me what I should know.	53.7	62.7	35.1
In my opinion:			
I am glad I went to this school.	53.2	53.2	81.7
I would have been better off at another school.	14.8	12.0	6.5
I don't think it matters.	32.0	34.8	11.8
Someone at home helps me with my school work:			
A lot.	18.4	19.5	27.8
A little bit.	59.8	57.0	63.2
Not at all.	21.8	23.5	9.0

Students in traditional and Nova schools evidenced a more positive view of their schools than did students at the open plan, innovative schools. Students from Nova schools were distinctly more positive than students from conventional and innovative schools in their responses to items concerning how they thought about most things in their school, whether their school made them feel proud, how relaxed they were in school, whether they were glad to go to their school, how much help they received at home with school work, and their preferred method of learning. In comparing reactions from students in conventional and innovative schools, differences of more than one or two percentage points in favor of conventional schools can be noted in student responses to items eliciting information on whether their school made them feel proud, whether teachers liked them, and their preferred method of learning. Additionally, researchers found a majority of pupils in innovative schools felt that the noise and confusion level was too high at their schools, while a majority of the students at traditional schools did not believe that noise and confusion were serious problems at their schools.

Transition from an open to a traditional school. Concern about the ability of students to adjust to a change from open to traditional schools has been expressed by educators and laymen. The Center for the Study of Social Organization of Schools (Johns Hopkins University) in its research report titled *Student Reactions to the Transition from Open Elementary School to Junior High School: A Case Study* (117), concluded that students from open elementary schools have no more trouble adjusting to a traditional junior high school than do students from conventional elementary schools. Furthermore, the researchers present evidence that open elementary schools and traditional junior high schools may have more in common than traditional elementary and junior high schools, making the transition period an easier one for students from the open elementary schools.

The case study population was comprised of 47 students from open and conventional elementary schools. The students' previous academic performance and personal backgrounds were statistically controlled. Questionnaires were distributed to the students during their last year in elementary school and a year later after they had become students of the same junior high school.

The results of the questionnaire administered while the students were in elementary school revealed that the students in the open schools were less dependent on teacher authority than those from traditional schools. Students from the open school also had a stronger preference for the open school organization than did students from schools with conventional organizational patterns.

The questionnaire given after all the students had reached junior high school showed that students from the traditional elementary school had become more like the open elementary school students in the one year period between the administration of the first and second questionnaire in that they had increased their acceptance of the open school organizational pattern.

Results of the second questionnaire also indicated that students from the open elementary school viewed their elementary and junior high schools as being more alike than did students from the conventional elementary school. The researchers noted that open elementary schools and traditional junior high schools are similar in two important aspects: (1) they offer a greater variety of activities and expect students to deal with a larger number of teachers than do traditional elementary schools, and (2) they have similar amounts of "dominance by authority" present (the degree to which teachers determine student behavior, provide supervision, and make important decisions). In a conventional school, there is a greater degree of dominance by authority than is true of either an open elementary or a traditional junior high school.

In the researchers' opinion, students from the conventional elementary school made a satisfactory adjustment to junior high school, but they had a greater adjustment to make than did students from the open

elementary school. Because junior high school is more like an open elementary school than a traditional elementary school,

> students from open elementary schools have more appropriate expectations about junior high organization and do not have to change their preferences. On the other hand, traditional school students must change their preferences if they are to accommodate themselves to the new structures they find in junior high school. Thus, it appears that the open elementary school may assist the transition to junior high more than the traditional elementary because of similarities in structure which foster more appropriate preferences and expectations in students (117: 4).

TEACHER ROLE AND ATTITUDE

In its philosophical and behavioral aspects, the role of the teacher in open education is far different from the role of the teacher in traditional education. Advocates of open education believe that the classroom should not be teacher centered and teacher dominated. The teacher should, instead, act as a facilitator of learning--an innovator, manager, planner, record keeper, and resource person. The teacher in an open setting concentrates on individual or small group instruction rather than on whole class instruction. Furthermore, the teacher should be prepared and willing to accept a high degree of student input in the decision making process.

Opponents of open education raise questions as to whether the effectiveness and status of the teacher will be diminished in the open classroom, while some advocates of open education stress that the teacher's role--while greatly altered--actually will be more important. Joseph Featherstone cites John Dewey to support his belief that "in a proper informal setting, adults ought to become more important: '. . . Basing education upon personal experience may mean more multiplied and more intimate contacts between the mature and the immature than ever existed in the traditional schools, and consequently more rather than less guidance (57: 24).'" Charles Silberman, another proponent of open education, believes that the role of the teacher in open education has been misunderstood and states that 'Contrary to the view that some hold, and contrary to actual practice in so-called free schools, with which open classrooms are sometimes confused, the teacher plays a more active and creative role in an open classroom than in a traditional room (177: n.p.)."

In this vein, Baumrind suggests that the teacher in an open classroom should be viewed as "authoritative," in contrast to the "authoritarian" teacher model in the traditional classroom or the "permissive" teacher favored by some advocates of experimental change in education (92).

Although strong differences exist among educators as to the advisability of introducing open education to American schools, general agreement is found with regard to the considerable difficulties involved in teacher adaptation to such basic changes. Change is seen as being particularly trying for experienced teachers accustomed to teaching in established ways, yet complete teacher acceptance of new types of relationships with students and fellow teachers is held to be a necessary component of open education. Such elemental changes in philosophical outlook and overt behavior requires, according to open education supporters, heavy emphasis on teacher re-education and training.

In this section of the *Research Brief*, eight studies of teachers in open education are reviewed. Three studies deal with teacher opinion and morale; one concerns changes in teacher attitude and behavior; one pertains to the effectiveness of an open school staffed with inexperienced teachers; one explores the relationship of status variables and teacher satisfaction; and two describe the development of instruments to determine personality differences between open and traditional teachers.

Teacher Morale and Opinions of Open Education

In their evaluation of the open campus program at Interlake Senior High School, Mickey and Lawrence surveyed teacher attitude (118). Interlake teachers were highly favorable to the continuation of the open campus policy. They were, in fact, the most favorable group polled. Ninety-eight percent of the Interlake faculty indicated that the policy should be continued, compared to 92 percent of the students, 75 percent of the businessmen, and 70 percent of the parents. Of this 98 percent, 81 percent wanted the policy continued with no changes, and 17 percent suggested continuation with some modification of the program.

Ninety percent of the Interlake teaching staff believed that the open school policy had had an effect on student behavior and attitude. (Eighty-one per cent of the staff viewed this effect as positive.) Eighty-five percent of the teachers saw the open policy as "somewhat beneficial" to the staff; 47 percent viewed the policy as being "very beneficial" to the staff. Fifty-six percent of the respondents indicated that the policy had no effect on their work load.

Sixty-two percent of the teachers reported positive changes in pupil attitude toward teachers and administrators. Fifty-three percent believed pupil attitude toward discipline had improved and that student responsibility for their own actions had increased.

Interlake teachers scored the program slightly negatively in only one item on the questionnaire: twelve percent of the teachers indicated that students did not complete assignments as regularly as they had under the traditional program.(Eleven percent reported more regularity in assignment completion.)

The Broward County School Board (Ft. Lauderdale, Florida) reported on teacher morale in innovative, open plan and traditional schools in *Evaluation of Innovative Schools: OCDQ Results for Fifth Year Teachers, 1970-71* (22). For this study, a random sample of fifth year teachers in conventional schools and open space, innovative schools were asked to complete the Organizational Climate Description Questionnaire (OCDQ). Meant to elicit subjective reactions to school climate rather than objective information, the OCDQ was used to gain data on teacher morale. Analysis of the results indicate that slightly better morale existed among teachers in conventional schools. Table 6 presents partial results of the OCDQ.

TABLE 6

Teacher Responses to the Organizational Climate Description Questionnaire (22: 6)

Question Number on OCDQ	Behavior	Score N=82 Inno.	Score N=105 Conv.
34.	Teachers at this school show much school spirit.	3.12	3.79
13.	The principal insures that teachers work to their full capacity.	3.65	4.26
19.	The teachers accomplish their work with great vim, vigor, and pleasure.	3.32	3.78
36.	The morale of the teachers is high.	3.32	3.92
32.	Extra books are available for classroom use.	3.45	4.10
37.	Instructions for the operation of teaching aids are available.	3.62	4.19
23.	There is a minority group of teachers who always oppose the majority.	2.46	1.91
2.	The principal goes out of his way to help teachers.	3.68	4.20
9.	Teachers are contacted by the principal each day.	2.92	3.44
14.	In faculty meetings there is a feeling of "let's get things done."	3.72	4.21

Note: The lower the score, the less frequently the behavior occurs.
The higher the score, the more frequently the behavior occurs.
Inno. = innovative
Conv. = conventional

In each category listed, teachers in conventional schools were more positive in their responses than those from innovative, open schools. The authors of the report urge caution in interpreting and generalizing from the findings, however, as overcrowding in the open schools may have been a factor in the responses made by teachers.

Evaluation of Innovative Schools: Research Questionnaire Tabulations for Fifth Year Pupils and Teachers 1970-71 is another report completed by the Broward County School Board (21). Attitude questionnaires were administered anonymously to all fifth year teachers at innovative schools and a number of teachers at conventional schools. (For information on the results of the pupil questionnaire, see p. 20.) The questionnaire results include the following highlights (21: 11,15):

- About three-fourths of the fifth-year teachers in innovative schools felt discipline in their school was too easy. Less than half of the teachers in conventional schools felt this way. Very few students in either type of school felt that discipline was too easy.

- Students and teachers agreed that teachers seem to have more time to help pupils in conventional schools. At Nova, which is highly individualized, teachers seem to have the least time to help pupils.

- The majority of fifth-year pupils and teachers in innovative schools felt that there was too much noise and confusion at their school. The majority of fifth-year students and teachers in the rest of the county felt that noise was not too much of a problem at their school.

- Pupils and teachers in innovative schools were more inclined to indicate that "working on their own" was the favored mode of instruction among pupils. In conventional schools, class discussions were preferred.

It should be noted that the two Nova schools are established schools offering highly individualized instruction.

- Teachers in innovative schools felt more comfortable about three items relating to the "open-space" arrangement for classroom instruction than did teachers in conventional schools. The latter teachers could, of course, only conjecture about how they would feel in such a situation. The items were: having other teachers present while teaching; teaching in an area where other teachers were also teaching; and being under observation by visitors.

- Teachers in innovative schools tended to think smaller pupil-teacher ratios were required for a fair evaluation.

- Teachers in innovative schools were more optimistic about the possiblity of implementing a program of individualized instruction for all students.

- Teachers in innovative schools gave consistently positive responses to important items specific to innovative programs. It is important to note that seventy-three percent of these teachers felt team teaching had helped them become better teachers. Innovative teachers' responses to two items were particularly important:

  a. Only about twelve percent favored teaching in a self-contained classroom. The majority opted for subject matter specialization, semi-departmentalization.

  b. Only about seven percent favored traditional classroom facilities. Forty percent preferred movable partitions. About twenty percent favored complete openness, and another twenty percent preferred pods.

What needs to be emphasized strongly about these findings is that very few teachers with experience in the new plants favored going back to self-contained classes in traditional plants. [Emphasis in the original.]

Teacher Attitude and Classroom Behavior

Alan F. Sewell and Allan W. Dornseif's study of open education at the junior high level in a Cook County, Illinois, school district led to a finding of no significant difference in classroom behavior and attitude between teachers in an open school and teachers in a traditional school (174). The researchers developed their own testing instrument to measure teacher attitude and used the Flanders method of interactional analysis in observing teacher behavior in the classroom. Attitude tests and behavioral observation were repeated three times during the school year. For further details on Sewell and Dornseif's research see pp. 9 and 18.

Inexperienced Teachers and the Open School

O. A. Oldridge's study of Overlander, an open space elementary school in Kamloops, British Columbia (Canada) includes an evaluation of the school's teaching staff which was composed entirely of inexperienced young teachers (132). (For results of studies on parent and student attitude, see p. 18 and p. 28.) Teachers for the new Overlander School were recruited among graduating students at a teachers college.

A January-April training session was established which included classes, seminars, a visit to a California non-graded school, and sensitivity training. Overlander was opened to students in September 1968, and staff evaluation of the open program later was done by questionnaire.

Results of the questionnaire indicated a positive reaction to the non-graded aspect of the open school and general staff agreement that students had responded well to the new type of school organization. Concern was expressed about student discipline becoming a problem, however, and a widespread desire was expressed for an expanded inservice training program. Staff members believed that they needed further training in the areas of non-graded organization, open plan schools, individualized instruction, and interpersonal relations.

The author concluded that it was possible for a staff of new teachers to implement an innovative open plan program, and that the lack of experienced teachers was not viewed as a detriment by students or parents. Oldridge emphasized the primary importance of the teaching staff in successfully establishing an open school. Staff members in an open school must co-operate readily, work closely, and plan together. As a result, Oldridge states that "selection of staff is probably the most crucial factor in the operation of an open space school (132: 40)."

Status Variables and Team Teacher Satisfaction

Marjorie S. Arikado and Donald M. Musella studied the relationship between two status variables and team teacher satisfaction in open plan schools (6). Participating in the study were 529 teachers from 134 teams at 71 schools. The status variables were congruency and consenus. Congruency refers to the degree of agreement between personal status and leadership status within the teaching team. (Personal status was defined in terms of age, sex, education, team teaching experience, and total teaching experience.) Information was gathered through the use of a questionnaire. Teachers were asked to provide information on personal and team data, their satisfaction with teaching, their satisfaction with team teaching, and their status expectations.

Analysis of the questionnaire indicated the following:

- There was a higher degree of satisfaction in teams with no formal leadership.
- Teams that were balanced with regard to their members' status were more satisfied than unbalanced teams.
- Satisfaction with team teaching was positively related to satisfaction with teaching in general.
- Team members preferred leaders who were not on the extreme ends of the continuum with regard to age, educational background, and teaching experience.
- The degree to which an individual was given a choice as to whether he or she would team teach was positively related to satisfaction.
- Smaller teams (three members) tended to be more satisfied than large teams (four or five members).
- A slight preference for male leaders and sexually heterogeneous teams was indicated.

Personality Characteristics of Teachers

The Open Curriculum and Selection of Qualified Staff: Instrument Validation, is a report on a test of the validity of John Barth's Assumptions About Learning and Knowledge Scale and the relationship of this scale to established "progressivism" and "traditionalism" scales (76).

Barth's scale and the Education Scale VII, designed to measure traditional and progressive attitudes toward education, were administered to 149 people. After analysis, it was concluded that Barth's scale was valid, and that it correlated positively with Education Scale VII.

In *Personality Characteristics and Assumptions Held by Open and Traditional Teachers of the Poor*, Anthony Coletta reports the results of a study done to investigate personality characteristics and assumptions of high- and low-rated open and traditional teachers working in elementary schools with a high proportion of disadvantaged students (42). Sixty teachers took part in this study--30 from open

schools and 30 from conventional schools. Each group was further divided into groups of high- and low-rated teachers. (Ratings were made by the teachers' supervisors.) Each of the four teacher groups (high rated open, low rated open, high rated traditional, low rated traditional) had 15 members.

Three testing instruments were administered to the teachers to determine if personality characteristics and/or assumptions differed significantly among the four groups. Edward's Personal Preference Schedule was used as a measure of personality variables such as attitude toward change, dominance, order, and achievement. The Thrustone Temperament Schedule was used to measure five elements of temperament: vigorous, dominant, stable, sociable, reflective. John Barth's Assumptions About Learning and Knowledge Scale also was used.

Analysis of the data collected indicated that there were no significant personality differences between the four groups of high- and low-rated, open and traditional teachers. Two differences that Coletta reported between open and traditional teachers were the degree to which they made intuitive judgments in evaluating the work of children and the preferred method of learning. Traditional teachers tended to rely on tests in evaluating a child's progress while teachers in open classrooms relied more on intuitive judgments. Traditional teachers were more likely than open teachers to believe that learning is maximized when a teacher transmits information to a student; open teachers favored exploration by the student as a preferred learning technique.

Coletta's research led him to conclude that there is no one personality best suited to open education and that identification of certain personality traits should not be the most important factor in selecting teachers for open education programs.

PARENT AND COMMUNITY REACTION TO OPEN EDUCATION

Advocates of open education emphasize that it can allow greater parent and community participation in the school program than is true of most traditional schools. They also stress the importance of educating and informing parents and the local community with regard to open education goals and methods prior to and during the establishment of an open education program.

Of four studies on parent reaction to open education, three conclude that the parents studied were favorable to the open education program in which their children participated, and one found no difference in attitude between parents of children in open and conventional programs. The one study that solicited community reaction to open education reported a positive response to the new program.

Alan F. Sewell and Allan W. Pornseif in their study of open and traditional classes in Cook County, Illinois, report that the attitudes toward school of parents with children in open and conventional classes did not differ significantly (174). To gain information, the researchers developed their own parent questionnaire. This finding on parent attitude was consistent with their other findings regarding teacher behavior and attitude and student achievement. Open education students in this study, however, had slightly more positive attitudes toward school than those from traditional classes. (See pp. 9, 18, and 25 for other results of this study.)

In another study, *The Roosevelt Program: Changing Patterns in Education at Roosevelt Junior High School*, Phil George reported positive parent reaction to open education (70). Seventy-eight percent of the Roosevelt parents responded to an evaluation questionnaire. Of this group, 89 percent favored the continuation of open education; 59 percent advocated continuing the program as it was, while another 30 percent supported continuation with some changes in the program. Ten percent of the parents supported a return to the traditional type of program.

The following reactions from parents were noted:

- Parents reported the greatest source of satisfaction in the program is the opportunity to choose the courses their children will take in junior high school, from the variety offered.
- Of least satisfaction to parents is the lack of communication with House advisors.
- Parents reported over two and one-half times the number of positive changes in their children's attitude or behavior than negative changes since attending Roosevelt. [Note-Parents of Roosevelt students had to sign and approve their child's course selection card. House advisors were teachers who acted as advisors on academic and personal matters to groups of 20 to 25 students.] (70: 19)

The researchers also reported that parent involvement increased after the open education program was instituted.

In another study, O. A. Oldridge reported findings of favorable parent response to open education (132). Parents of children attending Overlander Elementary School were surveyed. The reaction was positive, as shown in Table 7, which presents data collected through the use of a questionnaire. (For further information on student reaction and teacher role and attitude, see pp. 18 and 25.)

As indicated by the following table, 88 percent of Overlander parents believed that the new open program represented a basic change in their children's education. Fifty-one percent viewed this change as advantageous, while 27 percent viewed it as disadvantageous. Seventy-eight percent of the parents did not note an increase in student absentee rates, and 63 percent reported that their children enjoyed Overlander more than their former schools. Fifty-eight percent felt that their children were becoming more responsible for their learning compared with 29 percent who disagreed with this statement. Ninety-two percent of the parents favored having several teachers work with their children; 74 percent believed that Overlander had taken a greater individual interest in their children than other schools.

Donald L. Mickey and Bryan E. Lawrence's study of parent reaction to the Interlake High School open campus program also involved eliciting responses from parents through the use of a questionnaire (118). (See pp. 11, 19, and 23, for further information concerning the Interlake open education program.)

TABLE 7

Parent Responses to Overlander Questionnaire (132: 10A)

	Yes	No	N.A.
	%	%	%
1. Do you feel that Overlander is really different from the school(s) your child attended before?	88	5	7
2. If yes, do you feel the difference is an advantage to your child?	51	27	22
3. Has your child been absent from school more days this year than last year?	9	78	13
4. Is your child happier about going to school this year than before? (If this is his first year of school, don't answer.)	63	25	12
5. Do you feel your child has learned as much in Overlander as in other schools?	58	29	13
6. Has your child's behavior at home towards his family changed this year?	36	58	6
7. If yes, are you pleased with the change?	31	15	54
8. Do you know as much about Overlander School as other schools your child has attended?	72	13	15
9. Have you felt free to visit the school and ask questions? How many times did you visit? (For any reason) _____	87		13
10. Do you think the design of the building is desirable for a school?	62	30	18
11. Do you feel that the child becoming responsible is important? (If yes, answer 12.)	92	4	4
12. Do you feel your child has become more responsible for his learning?	58	29	13
13. Do you think having several teachers working with each child is good for the children?	92	4	4
14. Do you feel the school has taken a greater individual interest in your child this year?	74	14	12
15. Do you know, the teachers in Overlander School are all beginning teachers. Do you feel this has handicapped your child's education this year?	5	81	14

Seventy percent of the parents, as opposed to 98 percent of the faculty, and 92 percent of the students, felt that the open campus policy should be continued. Fifty-nine percent of the parents believed that the policy has effected their children's attitude and behavior. Of this group, 51 percent viewed the change as positive; 26 percent viewed it as negative; and 23 percent were unsure. Mickey and Lawrence concluded that, as a group, parents believed that open education had increased student responsibility and led to good academic performance. Nevertheless, a number of parents expressed concern over student attendance and the discipline of their children at home. Twenty-one percent believed that the new open campus policy had negatively affected their children's attendance records; 14 percent believed that the children's attendance had improved. Thirteen percent of the parents thought open education had a negative effect on their children's behavior at home, while six percent thought the change was positive.

A study of police and business community reaction to the open campus also was included in Mickey and Lawrence's evaluation. Seventy-five percent of the responding area businessmen favored the continuation of the open campus policy. Police and businessmen reported no serious incidents or problems associated with the new Interlake program.

No research study on open education and administrators was found. A search of the literature did provide information on possible changes in the administrator's role in open education, however, as well as comparisons of British and American administrators.

Open education concepts have been applied most widely in Great Britain where the organization of educational institutions differs significantly from that of the U.S. In Great Britain, the school system is organized on a national basis. The National Ministry is responsible for the development of new policies, and the Local Education Authority (LEA) is responsible for the dissemination of information on such policies to individual schools. The National Advisory Council and Her Majesty's Inspectors evaluate and supervise the educational program. These inspectors encourage positive change rather than rate school personnel on job performance.

Although British schools are under national control, individual schools, teachers, and administrators reportedly are subject to less outside pressure than are their American counterparts. Curriculum decisions are not made by local communities; teachers have more professional autonomy and are less mobile than in the U.S. Teachers are tenured after one year of satisfactory service, and school personnel are not considered to be the employees of a given local community. Like the teachers under his or her direction, the head master or head mistress of a British school is given more freedom to determine and implement new instructional programs than is typical of an American educator. Other elements of contrast reported between the British and American educational systems include the higher status of educators in Great Britain, the tendency of British schools to be much smaller than American schools, and the fact that British educators are not as restrained as Americans in developing programs designed to meet college entrance requirements. (No more than 10 percent of British students go on to institutions of higher education.)

Changes in the Administrative Role in the Open School

In *Open Education: ESEA Title I* (an account of the introduction of open education to the public schools of New Rochelle, N. Y.), the following description of the new role of the top level administrator is given:

> Perhaps the most important change is in the role of the top-level administration. The administration will have to reexamine their expectations for teacher behavior in light of this new approach to learning. The implementation, growth, and development of any program is possible only to a limited degree without active interest, support, and encouragement by the administration. Hesitation or noncommitment can undermine growth and be the cause of leveling-off or petering-out of change and effort. Perhaps the most evident reason for the hesitation or tentative support is a misinterpretation of the meaning of accountability and evaluation. Part of the new role of the administrative personnel is the revision of criteria in evaluating learning and in the determination of accountability (5: 53).

A revised role for the school principal also was outlined:

> A principal will need to adopt a role much broader than that observed in much current practice. Priority will be more obviously placed on the following: (1) learning along with the teacher, (2) supporting by giving encouragement, (3) showing interest as well as seeing that adequate basic materials are supplied, and (4) providing the needed information to answer parents' questions (5: 50).

Another suggestion for change comes from Lillian G. Katz in *Open-Informal Education: Recommendations for Research and Development*. She advocates support by the National Institute of Education for a new administrative position in American schools: the "executive secretary." The individual in this position would relieve the school principal of many administrative duties. This would allow an American principal to act more in the manner of a British headmaster, who often has regular teaching duties and is more a head teacher and teacher trainer than an administrator. Katz proposed this change in advocating NIE's support of

> the development of a new role for elementary school administration, namely an Executive Secretary, who is responsible to the Principal and his staff for day-to-day administrative

functions. The Executive Secretary would relieve the Principal of administrative detail, and free him/her for in-service leadership and training. A few pilot projects in schools of varying size which elect to participate in such a project should be supported for two of three years of development. A careful documentation of the natural history of the development project should be required (92: 28).

In an application for funding for Project Solve (Support of Open Concept Learning Areas through Varied Education Teams) the Somersworth School District of New Hampshire described in detail the principal's role in open education as that of "change agent." In this role, the principal would motivate change, establish rewards, facilitate interpersonal relations, and develop a decision making apparatus which involved other staff members to a high degree. The following section on the principal as change agent is exerpted from the SOLVE proposal (180: 35-39).

The Principal as Change Agent.

1. The principal will motivate his staff to change as well as overcoming inherent problems.
   a. With his faculty, the principal will develop a two-way system of communication which has as its components frequent communication and goal setting for both teachers and principal.
   b. The principal will establish and make known, both the rewards system and the criteria for rewards.
   c. The principal will exhibit the characteristics identified by Likert:
      1. They are guided by the fact that any new practice must give promise for improving both attitudes and productivity.
      2. They rapidly sense any unfavorable shift in attitude among their subordinates and promptly change or stop the activity responsible for the undesirable shift.
      3. They avoid putting greater hierarchical pressures on workers to increase production.
      4. They tend to use principles and practices of management which yield better communication and better decisions. [Renis Likert, *New Patterns of Management*, New York: McGraw-Hill Book Co., 1961. p. 78.]
2. The principal will develop a decision-making process.
   a. The principal will involve teachers in instructional decisions, i.e., groupings--staff organization.
   b. The principal will assume the role of a facilitator in the decision-making process by monitoring the procedure in group processes and decision making.
   c. The decision-making group will list at least three goals to be accomplished at a meeting and then meet the goals listed.

Open Education and School Costs

A practical factor that administrators must consider in comparing open space to traditional schools is the cost of construction. The Educational Facilities Laboratories and Educational Planning Associates present information on this subject in *Schools: More Space/Less Money*, published in 1971.

According to this study, open space and open campus programs may provide for considerable economies in education. With open campus programs, generally at the secondary level, schools may increase their enrollment capacity because students are free to leave school when they are not attending classes. Student "holding places," such as study halls, can be converted for instructional use without expanding the school plant. More students can attend a given school and/or a more diversified program of courses can be offered under this type of arrangement. For example, "Jones High School, Beeville, Texas, has raised its capacity of 970 students to over 1,200 as a result of an extended day schedule combined with an open campus plan (38: 30)."

Open space also can provide economies in the amount of floor area used for instructional purposes. According to Educational Facilities Laboratories, 66 percent of the gross floor area in conventional schools is used for educational space. In contrast, some open schools use 80 percent or more of their space for educational purposes because fewer space utilizing partitions, walls, and corridors are present in open schools.

Space in open plan schools may be less expensive as well. The major expense of partitions and doors is lowered significantly, and less complicated electrical, heating, ventilating, and duct work is needed in an open school.

Construction costs are lowered because the system is simple. Even though carpeting and ceiling insulation are generally installed in open schools for acoustical purposes, total construction costs tend to be lower than those for traditional schools.

The Educational Facilities Laboratories supplies the following examples:

> The Cherry Creek school system in metropolitan Denver can point to significant savings in the open-plan Walnut Hills School. This elementary school opened in September 1969, with three open-plan instructional areas. A fourth instructional area was recently completed, giving the school a total of 36,800 sq. ft. gross, and a capacity of 600. The entire school is open-plan (excluding 1,000 sq. ft. of office space) and consists of four large learning modules around an open, book-lined educational mall. Almost 85% of the total space at Walnut Hills is instructional space, contrasted to about 65% in the average Cherry Creek elementary school.
>
> The total construction cost for this facility was about $155,000 including carpeting, acoustical ceilings, and built-in cabinetwork, but excluding fees, site work, and movable equipment. The $19.25 cost per sq. ft. compares favorably with the estimated cost in 1970 of a conventional school of the same capacity--$22 per sq. ft. Cost per student was about $1,200 (including furnishings), which is at least $500 less than the comparable figure for a conventional school.
>
> Although open planning is usually associated with elementary schools, it is beginning to be used in secondary schools, such as the new senior high school in East Aurora, New York.
>
> This school, serving 1,200-students in grades 9-12, has a gross floor area of 168,500 sq. ft. It includes six general learning areas, a large science center, specialized learning facilities, a swimming pool, two large-group instruction rooms, and an 800-seat auditorium. It is extensively carpeted and is airconditioned throughout.
>
> The total construction cost (including general construction, HVAC, electrical and plumbing) was $20.68 per sq. ft. Carpeting cost $0.49 per sq. ft. The total, $21.17, is at least $2 per sq. ft. less than the New York State average for high school construction during the same period ($23.20), even with additional cost for carpeting (38: 28,29).

Concluding Remarks. Open education is a recent phenomenon in American classrooms involving major changes in the philosophic framework and practical operation of the American educational system. Research models on this topic are still in the formative stage; present findings, as represented in this *ERS Research Brief*, are varied and sometimes contradictory. Only through continued study of open education programs will the benefits and deficits of open education become demonstrably clear.

ERS requests that the readers of this publication contribute two copies of each research study on open education that is available to them in order that up-to-date information on this subject can be developed and shared with school systems.

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